

CLAIMS

1. A method for assigning servers to provide multiple description bitstreams to a base station, said method comprising the steps of:

- 5 a) upon receiving a request from a mobile client to have media data streamed thereto, analyzing a plurality of servers to determine a first candidate server for providing a first multiple description bitstream to said base station along a first path and a second candidate server for providing a second multiple description bitstream to said base station
10 along a second path; and
- b) sending to said first candidate server a request for said first candidate server provide said first multiple description bitstream to said base station; and
- c) sending to said second candidate server a request for said second
15 candidate server provide said second multiple description bitstream to said base station.

2. The method for assigning servers to provide multiple description bitstreams to a base station as recited in Claim 1, wherein step a)
20 comprises receiving said request from said mobile client at a base station, and forwarding said request to one of said plurality of servers.

3. The method for assigning servers to provide multiple description bitstreams to a base station as recited in Claim 1, wherein step a)
25 comprises identifying, from said plurality of servers, servers having a route to said base station to provide identified servers.

4. The method for assigning servers to provide multiple description bitstreams to a base station as recited in Claim 3, wherein step a)
30 comprises intelligently evaluating network parameters for each of said identified servers.

5. The method for assigning servers to provide multiple description bitstreams to a base station as recited in Claim 4, wherein step a)
35 comprises intelligently evaluating system parameters such as server and network parameters selected from the group comprising: computation load; network bandwidth to base station; and potential that either said first or said second multiple description bitstreams are previously stored thereon for each of said identified servers.

10. A computer readable medium having computer readable code stored thereon for causing a network device to assign servers to provide multiple description bitstreams to a base station, said method comprising
5 the steps of:

a) upon receiving a request from a mobile client to have media data streamed thereto, said network device analyzing a plurality of servers to determine a first candidate server for providing a first multiple
10 candidate server for providing a second multiple description bitstream to said base station along a second path; and

b) sending to said first candidate server a request for said first candidate server provide said first multiple description bitstream to said base station; and

15 c) sending to said second candidate server a request for said second candidate server to provide said second multiple description bitstream to said base station.

11. The computer readable medium of Claim 10 wherein said
20 computer readable medium further includes computer readable code stored thereon for causing said network device performing said step a) to receive said request from said mobile client at a base station, and forward said request to one of said plurality of servers.

12. The computer readable medium of Claim 10 wherein said
25 computer readable medium further includes computer readable code stored thereon for causing said network device performing said step a) to identify from said plurality of servers, servers having a route to said base station to provide identified servers.

13. The computer readable medium of Claim 12 wherein said
30 computer readable medium further includes computer readable code stored thereon for causing said network device performing said step a) to evaluate network parameters for each of said identified servers.

14. The computer readable medium of Claim 13 wherein said
35 computer readable medium further includes computer readable code stored thereon for causing said network device performing said step a) to evaluate system parameters such as server and network parameters

selected from the group comprising: computation load; network bandwidth to base station; and potential that either said first or said second multiple description bitstreams are previously stored thereon for each of said identified servers.

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15. The computer readable medium of Claim 10 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device to further perform the step of:

10 d) upon receiving said request for said first candidate server to provide said first multiple description bitstream to said base station along said first path, performing an admission process to determine whether said first candidate server will provide said first multiple description bitstream to said base station along said first path.

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16. The computer readable medium of Claim 10 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device to further perform the step of:

20 d) upon receiving said request for said second candidate server to provide said second multiple description bitstream to said base station along said second path, performing an admission process to determine whether said second candidate server will provide said second multiple description bitstream to said base station along said second path.

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17. The computer readable medium of Claim 15 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device performing said step d) to provide an outcome selected from the group comprising: granting permission to provide said first multiple description bitstream to said base station along said first path, refusing permission to provide said first multiple description bitstream to said base station along said first path, and granting permission to provide said first multiple description bitstream to said base station along said first path with the identification
30 an existing multiple description bitstream for potential redistribution to
35 another of said plurality of servers.

18. The computer readable medium of Claim 16 wherein said computer readable medium further includes computer readable code

stored thereon for causing said network device performing said step d) to provide an outcome selected from the group comprising: granting permission to provide said second multiple description bitstream to said base station along said second path, refusing permission to provide said second multiple description bitstream to said base station along said second path, and granting permission to provide said second multiple description bitstream to said base station along said second path with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

19. A method for assigning servers to provide multiple description bitstreams to a base station, said method comprising the steps of:

a) upon receiving a request from a mobile client to have media data streamed thereto, comprises identifying, from a plurality of servers, servers having a route to said base station to provide identified servers;

b) intelligently evaluating network parameters for each of said identified servers;

c) based upon results of steps a) and b), determining a first candidate server for providing a first multiple description bitstream to said base station along a first path and a second candidate server for providing a second multiple description bitstream to said base station along a second path; and

e) sending to said first candidate server a request for said first candidate server provide said first multiple description bitstream to said base station;

e) sending to said second candidate server a request for said second candidate server provide said second multiple description bitstream to said base station;

f) upon receiving said request for said first candidate server to provide said first multiple description bitstream to said base station along said first path, performing an admission process to determine whether said first candidate server will provide said first multiple description bitstream to said base station along said first path; and

g) upon receiving said request for said second candidate server to provide said second multiple description bitstream to said base station along said second path, performing an admission process to determine whether said second candidate server will provide said second multiple description bitstream to said base station along said second path.

20. The method for assigning servers to provide multiple description bitstreams to a base station as recited in Claim 19, wherein step a) comprises receiving said request from said mobile client at a base station, and forwarding said request to one of said plurality of servers.

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21. The method for assigning servers to provide multiple description bitstreams to a base station as recited in Claim 19, wherein step b) comprises intelligently evaluating system parameters such as server and network parameters selected from the group comprising:

10 computation load; network bandwidth to base station; and potential that either said first or said second multiple description bitstreams are previously stored thereon for each of said identified servers.

22. The method for assigning servers to provide multiple description bitstreams to a base station as recited in Claim 19, wherein said admission process of step f) provides an outcome selected from the group comprising: granting permission to provide said first multiple description bitstream to said base station, refusing permission to provide said first multiple description bitstream to said base station, and granting permission to provide said first multiple description bitstream to said base station with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

23. The method for assigning servers to provide multiple description bitstreams to a base station as recited in Claim 19, wherein said admission process of step f) provides an outcome selected from the group comprising: granting permission to provide said second multiple description bitstream to said base station, refusing permission to provide said second multiple description bitstream to said base station, and granting permission to provide said second multiple description bitstream to said base station with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

24. A method for assigning servers to provide multiple description bitstreams to respective base stations, said method comprising the steps of:

a) upon receiving a request from a mobile client to have media data streamed thereto, analyzing a plurality of servers to determine a first

candidate server for providing a first multiple description bitstream to a first base station along a first path and a second candidate server for providing a second multiple description bitstream to a second base station along a second path; and

5 b) sending to said first candidate server a request for said first candidate server to provide said first multiple description bitstream to said first base station; and

 c) sending to said second candidate server a request for said second candidate server provide said second multiple description bitstream to
10 said second base station.

25. The method for assigning servers to provide multiple description bitstreams to respective base stations as recited in Claim 24, wherein step a) comprises receiving said request from said mobile client
15 at a base station, and forwarding said request to one of said plurality of servers.

26. The method for assigning servers to provide multiple description bitstreams to respective base stations as recited in Claim 24,
20 wherein step a) comprises identifying, from said plurality of servers, servers having a route to said first base station and said second base station to provide identified servers.

27. The method for assigning servers to provide multiple
25 description bitstreams to respective base stations as recited in Claim 26, wherein step a) comprises intelligently evaluating network parameters for each of said identified servers.

28. The method for assigning servers to provide multiple
30 description bitstreams to respective base stations as recited in Claim 27, wherein step a) comprises intelligently evaluating system parameters such as server and network parameters selected from the group comprising: computation load; network bandwidth to base station; and potential that either said first or said second multiple description
35 bitstreams are previously stored thereon for each of said identified servers.

29. The method for assigning servers to provide multiple description bitstreams to respective base stations as recited in Claim 24,

further comprising the step of:

- d) upon receiving said request for said first candidate server to provide said first multiple description bitstream to said first base station along said first path, performing an admission process to determine
5 whether said first candidate server will provide said first multiple description bitstream to said first base station along said first path.

30. The method for assigning servers to provide multiple description bitstreams to respective base stations as recited in Claim 24,
10 further comprising the step of:

- d) upon receiving said request for said second candidate server to provide said second multiple description bitstream to said second base station along said second path, performing an admission process to determine whether said second candidate server will provide said second
15 multiple description bitstream to said second base station along said second path.

31. The method for assigning servers to provide multiple description bitstreams to respective base stations as recited in Claim 29,
20 wherein said admission process of step d) provides an outcome selected from the group comprising: granting permission to provide said first multiple description bitstream to said first base station, refusing permission to provide said first multiple description bitstream to said first
25 base station, and granting permission to provide said first multiple description bitstream to said first base station with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

32. The method for assigning servers to provide multiple
30 description bitstreams to respective base stations as recited in Claim 30, wherein said admission process of step d) provides an outcome selected from the group comprising: granting permission to provide said second multiple description bitstream to said second base station, refusing
35 permission to provide said second multiple description bitstream to said second base station, and granting permission to provide said second multiple description bitstream to said second base station with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

33. A computer readable medium having computer readable code stored thereon for causing a network device to assign servers to provide multiple description bitstreams to respective base stations, said method comprising the steps of:

5 a) upon receiving a request from a mobile client to have media data streamed thereto, said network device analyzing a plurality of servers to determine a first candidate server for providing a first multiple description bitstream to a first base station along a first path and a second candidate server for providing a second multiple description bitstream to a
10 second base station along a second path; and

 b) sending to said first candidate server a request for said first candidate server to provide said first multiple description bitstream to said first base station; and

15 c) sending to said second candidate server a request for said second candidate server provide said second multiple description bitstream to said second base station.

20 34. A method for assigning a single server to provide multiple description bitstreams to a plurality of base stations, said method comprising the steps of:

 a) upon receiving a request from a mobile client to have media data streamed thereto, analyzing a plurality of servers to determine a single candidate server for providing a first multiple description bitstream to a first base station along a first path and for providing a second multiple
25 description bitstream to a second base station along a second path; and

 b) sending to said single candidate server a request for said single candidate server to provide said first multiple description bitstream to said first base station; and

30 c) sending to said single candidate server a request for said single candidate server provide said second multiple description bitstream to said second base station.

35 35. The method for assigning a single server to provide multiple description bitstreams to a plurality of base stations as recited in Claim 34, wherein step a) comprises receiving said request from said mobile client at one of said plurality of base stations, and forwarding said request to said single candidate server.

36. The method for assigning a single server to provide multiple

description bitstreams to a plurality of base stations as recited in Claim 34, wherein step a) comprises identifying, from said plurality of servers, servers having a route to a first base station and a second base station to provide identified servers.

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37. The method for assigning a single server to provide multiple description bitstreams to a plurality of base stations as recited in Claim 36, wherein step a) comprises intelligently evaluating network parameters for said identified servers.

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38. The method for assigning a single server to provide multiple description bitstreams to a plurality of base stations as recited in Claim 37, wherein step a) comprises intelligently evaluating system parameters such as server and network parameters selected from the group comprising: computation load; network bandwidth to said first base station and said second base station; and potential that either said first or said second multiple description bitstreams are previously stored thereon for each of said identified servers.

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20 39. The method for assigning a single server to provide multiple description bitstreams to a plurality of base stations as recited in Claim 34, further comprising the step of:

d) upon receiving said request for said single candidate server to provide said first multiple description bitstream to said first base station along said first path, performing an admission process to determine whether said single candidate server will provide said first multiple description bitstream to said first base station along said first path and whether said second candidate server will provide said second multiple description bitstream to said second base station along said second path.

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40. The method for assigning a single server to provide multiple description bitstreams to a plurality of base stations as recited in Claim 39, wherein said admission process of step d) provides an outcome selected from the group comprising: granting permission to provide said first multiple description bitstream to said first base station and said second multiple description bitstream to said second base station, refusing permission to provide said first multiple description bitstream to said first base station and said second multiple description bitstream to said second base station, and granting permission to provide said first multiple

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description bitstream to said first base station and said second multiple description bitstream to said second base station with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

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41. A computer readable medium having computer readable code stored thereon for causing a network device to assign a single server to provide multiple description bitstreams to a plurality of base stations, said method comprising the steps of:

10 a) upon receiving a request from a mobile client to have media data streamed thereto, said network device analyzing a plurality of servers to determine a single candidate server for providing a first multiple description bitstream to a first base station along a first path and for providing a second multiple description bitstream to a second base station
15 along a second path; and

b) sending to said single candidate server a request for said single candidate server to provide said first multiple description bitstream to said first base station; and

c) sending to said single candidate server a request for said single
20 candidate server provide said second multiple description bitstream to said second base station.

42. A method for assigning servers to provide multiple description bitstreams to a fixed client, said method comprising the steps of:

25 a) upon receiving a request from a fixed client to have media data streamed thereto, analyzing a plurality of servers to determine a first candidate server for providing a first multiple description bitstream to said fixed client along a first path and a second candidate server for providing a second multiple description bitstream to said fixed client
30 along a second path; and

b) sending to said first candidate server a request for said first candidate server provide said first multiple description bitstream to said fixed client; and

c) sending to said second candidate server a request for said second
35 candidate server provide said second multiple description bitstream to said fixed client.

43. The method for assigning servers to provide multiple description bitstreams to a fixed client as recited in Claim 42, wherein

step a) comprises receiving said request from said fixed client at one of said plurality of servers, and forwarding said request to one of said plurality of servers.

5 44. The method for assigning servers to provide multiple description bitstreams to a fixed client as recited in Claim 42, wherein step a) comprises identifying, from said plurality of servers, servers having a route to said fixed client to provide identified servers.

10 45. The method for assigning servers to provide multiple description bitstreams to a fixed client as recited in Claim 44, wherein step a) comprises intelligently evaluating network parameters for each of said identified servers.

15 46. The method for assigning servers to provide multiple description bitstreams to a fixed client as recited in Claim 45, wherein step a) comprises intelligently evaluating system parameters such as server and network parameters selected from the group comprising:
20 either said first or said second multiple description bitstreams are previously stored thereon for each of said identified servers.

25 47. The method for assigning servers to provide multiple description bitstreams to a fixed client as recited in Claim 42, further comprising the step of:

30 d) upon receiving said request for said first candidate server to provide said first multiple description bitstream to said fixed client along said first path, performing an admission process to determine whether said first candidate server will provide said first multiple description bitstream to said fixed client along said first path.

 48. The method for assigning servers to provide multiple description bitstreams to a fixed client as recited in Claim 42, further comprising the step of:

35 d) upon receiving said request for said second candidate server to provide said second multiple description bitstream to said fixed client along said second path, performing an admission process to determine whether said second candidate server will provide said second multiple description bitstream to said fixed client along said second path.

49. The method for assigning servers to provide multiple description bitstreams to a fixed client as recited in Claim 47, wherein said admission process of step d) provides an outcome selected from the group comprising: granting permission to provide said first multiple description bitstream to said fixed client, refusing permission to provide said first multiple description bitstream to said fixed client, and granting permission to provide said first multiple description bitstream to said fixed client with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

50. The method for assigning servers to provide multiple description bitstreams to a fixed client as recited in Claim 48, wherein said admission process of step d) provides an outcome selected from the group comprising: granting permission to provide said second multiple description bitstream to said fixed client, refusing permission to provide said second multiple description bitstream to said fixed client, and granting permission to provide said second multiple description bitstream to said fixed client with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

51. A computer readable medium having computer readable code stored thereon for causing a network device to assign servers to provide multiple description bitstreams to a fixed client, said method comprising the steps of:

a) upon receiving a request from a fixed client to have media data streamed thereto, said network device analyzing a plurality of servers to determine a first candidate server for providing a first multiple description bitstream to said fixed client along a first path and a second candidate server for providing a second multiple description bitstream to said fixed client along a second path; and

b) sending to said first candidate server a request for said first candidate server provide said first multiple description bitstream to said fixed client; and

c) sending to said second candidate server a request for said second candidate server to provide said second multiple description bitstream to said fixed client.

52. The computer readable medium of Claim 51 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device performing said step a) to receive said request from said fixed client at one of said plurality of servers, and forward said request to one of said plurality of servers.

53. The computer readable medium of Claim 51 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device performing said step a) to identify from said plurality of servers, servers having a route to said fixed client to provide identified servers.

54. The computer readable medium of Claim 53 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device performing said step a) to evaluate network parameters for each of said identified servers.

55. The computer readable medium of Claim 54 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device performing said step a) to evaluate system parameters such as server and network parameters selected from the group comprising: computation load; network bandwidth to fixed client; and potential that either said first or said second multiple description bitstreams are previously stored thereon for each of said identified servers.

56. The computer readable medium of Claim 51 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device to further perform the step of:

d) upon receiving said request for said first candidate server to provide said first multiple description bitstream to said fixed client along said first path, performing an admission process to determine whether said first candidate server will provide said first multiple description bitstream to said fixed client along said first path.

57. The computer readable medium of Claim 51 wherein said computer readable medium further includes computer readable code

stored thereon for causing said network device to further perform the step of:

- d) upon receiving said request for said second candidate server to provide said second multiple description bitstream to said fixed client
 5 along said second path, performing an admission process to determine whether said second candidate server will provide said second multiple description bitstream to said fixed client along said second path.

58. The computer readable medium of Claim 56 wherein said
 10 computer readable medium further includes computer readable code stored thereon for causing said network device performing said step d) to provide an outcome selected from the group comprising: granting permission to provide said first multiple description bitstream to said fixed client along said first path, refusing permission to provide said first
 15 multiple description bitstream to said fixed client along said first path, and granting permission to provide said first multiple description bitstream to said fixed client along said first path with the identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

20 59. The computer readable medium of Claim 57 wherein said computer readable medium further includes computer readable code stored thereon for causing said network device performing said step d) to provide an outcome selected from the group comprising: granting
 25 permission to provide said second multiple description bitstream to said fixed client along said second path, refusing permission to provide said second multiple description bitstream to said fixed client along said second path, and granting permission to provide said second multiple description bitstream to said fixed client along said second path with the
 30 identification an existing multiple description bitstream for potential redistribution to another of said plurality of servers.

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